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GENERAL NOTES

Instruction in Navigation and Nautical Astronomy. At the initiative of the Committee on Mathematical and Astronomical Investigations of the Pacific Coast Research Conference the United States Shipping Board, Washington, D. C., has organized a number of navigation schools on the Pacific Coast with the coöperation of the University of California. Mr. Farnham P. Griffiths, B. L. 1906; A. B. (Oxford) 1910, formerly Secretary to President Wheeler, has been appointed Special Recruiting Officer for California and will have general oversight of the administrative details in California.

Professor A. O. Leuschner, of the Astronomical Department of the University, has been delegated by Dean Alfred E. Burton, of the Massachusetts Institute of Technology, Director of Instruction in the Navigation Schools of the United States Shipping Board, to administer the details of instruction on the Pacific Coast and in particular to provide qualified instructors.

Mr. Winfield M. Thompson, Special Agent United States Shipping Board, and Dean Burton have just concluded a visit to the Pacific Coast and have conferred with Mr. Griffiths and Professor Leuschner. In spite of the short notice given, Mr. Griffiths has already secured the necessary coöperation of interested parties in San Pedro, San Diego, and San Francisco, and on recommendation by Professor Leuschner the new navigation schools on the Pacific Coast are now completely manned.

At San Francisco instruction is given by Dr. F. J. Neubauer and Dr. Sturla Einarsson of the Berkeley Astronomical Department, who have been placed on half time in the University. They will be assisted by Captain G. Harding who will give instruction in seamanship.

Instruction is given at San Diego by Dr. H. D. Curtis, Astronomer at the Lick Observatory; at San Pedro by Mr. W. F. Meyer, Cand. Ph.D. in Astronomy, of the International Latitude Observatory at Ukiah; at Portland, Oregon, by Dr. Arthur Williams, Ph.D. (mathematics, 1916); at Astoria, Oregon, by Mr. C. D. Shane, Cand. Ph.D. Astronomy, Fellow at the Lick Observatory.

The San Francisco, San Pedro, and San Diego schools opened on Monday, August 20. The Portland and Astoria schools opened Monday, August 27.

The object of these navigation schools is to provide officers for

our new merchant marine. Only students who have had at least two years previous sea experience in the deck department are admitted, subject also to physical examinations. Admission to the school is on the certificate of the local Inspector of Hulls, U. S. Department of Commerce. Classes are limited to thirty. Two classes are being conducted in San Francisco, one in the morning and one in the evening. By an arrangement with the United States Shipping Board, classes in which less than thirty certified students of the United States Shipping Board are enrolled may be completed by admitting University Extension students.

The present satisfactory provision for training of officers for the merchant marine is the outcome of coöperation between the University of California Extension Division, represented by Director I. W. Howerth, the Department of Astronomy, and the United States Shipping Board. Thru the efforts of Mr. Griffiths space has been secured in the Ferry Building in San Francisco for conducting the work hereafter, where new space has also been assigned to the University Extension Division for the use of its own classes and of the navigation school of the United States Shipping Board. The class conducted by the City and County of San Francisco will also be held hereafter in the Ferry Building.

The University Extension Division offers two courses in Navigation and Nautical Astronomy, to be given by Dr. Neubauer. The first course is similar to that given under the direction of the United States Shipping Board and is open only to those who have had at least two years experience at sea.

The second course is for students without sea experience. On successful completion of the course these students will be given employment by the shipping interests of San Francisco on their vessels in order to get their sea experience.

The courses will cover the following subjects: the elementary processes of mathematics as used by navigators, the use of the nautical almanac, nautical tables, simple interpolation, dead reckoning; the various sailings, reading of charts; tides; introduction to nautical instruments, the use of the sextant and chronometer; determination of latitude by meridian observation; ex-meridian observation; compass error, variation, deviation, amplitude, time azimuth, altitude azimuth, the use of azimuth tables; determination of longitude by chronometer, determination of longitude by observation of Sun, Moon, planets, and stars; time, chronometer.

correction; practical problems; computing practise, day's work on shipboard; the Sumner line.

It may be of interest to note that at the first meeting of the class for the second course (no sea experience required) 190 students enrolled.

In addition to these courses the Berkeley Astronomical Department is offering an upper division course in Navigation and Nautical Astronomy. This course is also being given by Dr. Neubauer. The enrollment for this semester is nine.

In the last Summer Session also Dr. Neubauer gave this course. Fifteen students took the course, a few of whom have already been placed as Junior Officers in the service of one of the large steamship companies on this coast.

Dr. J. D. Maddrill, a Life Member of this Society, has recently been appointed actuary of the United States Bureau of Efficiency at Washington, and in this capacity will assist in working out the details of the insurance to be offered to soldiers and sailors by the United States Government.

THE COMMENCEMENT OF THE ASTRONOMICAL DAY.

The Civil day begins at midnight, the Astronomical day at noon, twelve hours later. Thus, a meeting called for 9 A. M. July 4, civil time, would convene on July 3^d, 21^h, astronomical time; one called at 3 P. M. July 4, civil time, would convene on July 4^d 3^h, astronomical time. The inconvenience attaching to the use of these two systems of time-reckoning has long been recognized and from time to time proposals have been made to adopt the civil day in astronomical ephemerides and to do away entirely with so-called astronomical time.

This proposition has again been brought forward by Sir F. W. Dyson, Astronomer Royal, and Professor H. H. Turner, of Oxford, in a letter published in the July number of the *Observatory*. The writers invite astronomers to send to one of them expressions of their opinion of the desirability of the change. Acting upon this suggestion, the American Astronomical Society, at its recent meeting at Albany, appointed a committee to consider the question and make a report.

There are many arguments in favor of adopting the civil day in astronomical ephemerides; and the only objection of any con-

sequence is the one pointed out in the letter referred to, that it would introduce discontinuity into astronomical records. This objection is not serious enough to count against the advantage of the change.

It is probably too late to secure any general agreement to the proposal in time to adopt it in nautical almanacs for 1920, but it would seem possible to introduce it at the next "round date," 1925, if astronomers everywhere will promptly voice their opinions in regard to it.

ROBERT G. AITKEN.

THE INTERNATIONAL GEODETIC ASSOCIATION.

In a note in the *Observatory* for July, 1917, Professor H. G. v. de Sande Bakhuyzen corrects the statement published in an earlier number of that journal that the Association had automatically ceased to exist at the close of the year 1916.

A brief account is given of the activities of the Association, which has for its aim the centralization of the efforts of different nations for the promotion of geodetic researches. Twenty-three different governments had joined in its work, at least from 1896, when a convention was adopted for a period of ten years. The convention was renewed for a new period of ten years from January 1, 1907, to December 31, 1916. It was impossible to renew it again, under existing conditions, and the death of General Bassot and of Professor Backlund and the illness of Dr. Helmert, left Professor Bakhuyzen the only member of the executive committee of the Association. He has, however, succeeded in securing the promise of coöperation on the part of the governments of Denmark, Netherlands, Norway, Spain, Sweden, Switzerland and the United States for a period to end about two years after the close of the war. M. Raoul Gautier, Switzerland, has been elected President, General Madsen, Denmark, Vice-President, and these two, with Professor Bakhuyzen as Secretary, will constitute the executive committee.

The observations for the variation of latitude, which have been conducted under the auspices of the Association, are being continued at Ukiah, California, Carloforte, Italy, Mizusawa, Japan, and probably, at Tschardjui, Russia.

RADIOACTIVITY OF METEORITES.

In the September, 1917, number of the American Journal of Science, Messrs. J. T. Quirke and L. Finkelstein, give an interesting account of their measurements of the radioactivity of 22 meteorites which were placed at their disposal by Dr. O. C. Farrington of the Field Museum of Natural History. The authors state that only one earlier attempt had been made to measure the radioactivity of meteorites (by Strutt in 1916) and this resulted in finding a radium content of 1.12×10^{-12} gm. radium per gram meteorite in one stony meteorite, and no radium content in two iron meteorites. They then describe their process of preparing samples of the 22 meteorites and their test by the "emanation method" which "can be used to measure extremely small amounts of radium with a fair degree of accuracy."

The stony meteorites, 16 in number, of varying composition and coming from regions as widely separated as Russia and Arizona, have an average radium content of 7.39×10^{-13} gm. per gram of meteorite; two iron-stone meteorites a content of 6.88×10^{-13} gm. of radium to a gram of meteorite; 3 iron meteorites show no measurable radioactivity, one shows a slight amount and one a decided amount. (This makes 23, not 22 meteorites, but the inconsistency is the authors'. They enumerate 22 specimens, but give 23 in their table.) Specimens of diorite and granite were also tested, and the final conclusion is as follows:

"From the data it appears that the average stony meteorite is considerably less radioactive than the average igneous rock, probably less than one-fourth as radioactive as an average granite, and that metallic meteorites are almost free from radioactivity."

NOVA PERSEI No. 2.

A telegram from the Harvard College Observatory, received on September 6, stated that Belopolsky had observed an increase in brightness in *Nova Persei* No. 2 from 13 to 11.5 magnitude on photographs taken between August 16 and 28. H. C. O. Bulletin 643, received later, repeats this message and adds:

The nova now appears to have nearly the same brightness as in March, 1914, when three plates gave the magnitude 13.02 on the international scale. Two photographs taken here on September 5, 1917, show the nova of the magnitude 13.4. A plate taken August 17, 1917, does not show the nova, although stars of the magnitude 12.2 are photographed.

A note on the spectrum of the nova is printed on another page.